PHARMACY & THERAPEUTICS COMMITTEE
MONOGRAPH

Prenatal Vitamins Class Review
Created 2/3/2012

Summary information provided. Consult package insert for full prescribing information.

Conflict of Interest Information

This monograph contains discussion of prenatal vitamin products from the following manufacturers:

Acella Pharmaceuticals, Amerisource Bergen, Amneal Pharmaceuticals, Boca Pharmaceutical, Breckenridge, Cypress Pharm, Equaline Vitamins, Ethex, Everett, Freeda Vitamins, Good Neighbor, Leader, Major Pharmaceuticals, Mission Pharm, Hawthorn Pharm, Rugby, Trigen Labs, Lannett Co, H.E.B., Contract Pharm, Sunmark, McKesson Drug, CVS, Rite Aid Corp, Walgreen Co., Medicine Shop, Bayer Inc., Magno-Humphries, Pronova, Prugen Pharm, Seton Pharmaceuticals, Women's Choice, Vertical Pharm, and Xanodyne Pharmaceuticals.

SIGNIFICANT EVENTS -

- In 2008 the FDA published a report with analysis of various vitamin supplements. Lead contamination was found in various formulations of prenatal vitamins, but lead levels were below the provisional total tolerable intake (PTTI) levels for pregnant and lactating women. [1,2] http://www.fda.gov/Food/FoodSafety/FoodContaminantsAdulteration/Metals/Lead/ucm115941.htm

NEW WARNINGS -

- None

INTRODUCTION/BACKGROUND

Maternal nutrient intake during pregnancy is known to influence fetal growth and development. Supplemental nutrient intake from a prenatal vitamin during the prenatal period may decrease the risk of several types of pregnancy complications including congenital malformations, maternal anemia, and pre-eclampsia. Many women supplement dietary intake with a prenatal vitamin during pregnancy and lactation. Both prenatal vitamin supplementation and adequate dietary intake of vitamin-rich foods are often encouraged during pregnancy. Women in the United States are often able to obtain the majority of nutrient requirements during pregnancy from a well-balanced diet; additional folic acid (FA) and iron supplementation are generally recommended, and many will obtain this from a prenatal vitamin supplement.[3]

The importance of folic acid intake during the antenatal and prenatal period has been emphasized by various organizations. Beginning in January 1998 the U.S. government mandated folate supplementation of cereal and grains. The required folate fortification of various foods resulted in a 36% decrease of spina bifida prevalence in the United States.[4] While the mandated fortification has greatly reduced neural tube defects (NTD), not all women may receive the recommended daily

allowance (RDA) for folate via dietary cereals and grain consumption alone, and the U.S. Preventative Services task force continues to recommend that women of child-bearing age receive a minimum of 0.4mg folic acid daily.[5]

General recommendations often include a prenatal vitamin formulation containing the following vitamins, minerals and trace elements:[6]

	Recommended dose per day
Iron	30mg
Zinc	15mg
Copper	2mg
Calcium	250mg
Vitamin B6	2mg
Folate	0.4-0.6mg
Vitamin C	50mg
Vitamin D	5-10mcg (200-400 IU)

RECOGNIZED TREATMENT GUIDELINES/THERAPY REVIEWS

- The U.S. Preventative Services Task Force recommends that all women planning or capable of pregnancy take a folic acid supplement of 400mcg to 800mcg daily (0.4 to 0.8mg). [5]
- The Center for Disease Control (CDC) recommends that all women between ages 15 and 45 consume 400mcg (0.4mg) of folic acid daily to prevent spina bifida and anencephaly.[7] Any female with a previous pregnancy affected by a neural tube defect (NTD) should consume 400mcg daily when not planning to get pregnant, then increase to 4000mcg (4mg) of folic acid starting one month prior to planning to get pregnant as well as during pregnancy.[7]
- The American Congress of Obstetricians and Gynecologists (ACOG) states that women in the U.S. will require supplementation of iron and folic acid during pregnancy. [3] For most women a prenatal vitamin supplement is recommended to provide these nutrients during pregnancy. [3]
- Additional prenatal supplement requirements beyond iron and folic acid may be recommended for certain individuals, such as those with vegan or vegetarian diets, a history of bariatric surgery, or multiple gestation pregnancies. [3]
- The American Thyroid Association recommends that pregnant and lactating women receive 150mcg iodine as a daily supplement.[8]
- The American Congress of Obstetricians and Gynecologists (ACOG) does not recommend routine vitamin D screening for pregnant women.[9]
- World Health Organization has released a statement on omega-3 fatty acids: “Marine oils contain essential omega-3 fatty acids, which may prevent pregnancy complications such as pre-eclampsia, preterm birth and low birth weight. There is not enough evidence to support routine supplementation with fish oil during pregnancy, however women may benefit from fish oil supplementation to increase the length of gestation.” (category 2 intervention: extensive evidence but no treatment guidelines available)[10]

CALCIUM

Calcium is essential for the proper development of fetal tissues during pregnancy as well as bone maintenance for the mother. Calcium is derived from dietary sources such as dairy products and leafy green vegetables and requires vitamin D for absorption. Most women will receive adequate calcium intake from a well-balanced diet. In cases of inadequate calcium intake, maternal calcium stores may be mobilized to ensure adequate supply for the developing fetus, and may result in decreased maternal bone density.[6]

- The RDA of calcium for all women (non-pregnant, pregnant, or lactating) is 1000mg per day (increases to 1300mg per day for ages 14-18).[11] Women that are not able to obtain the RDA for calcium from dietary sources alone may consider a prenatal vitamin that contains calcium and/or additional calcium supplements (e.g. calcium carbonate). Vegetarians, vegans, and lactose-intolerant individuals may be less likely to consume and absorb adequate calcium from dietary sources.[11]
- A Cochrane review of 21 studies (over 16,000 women) determined that calcium supplementation did not reduce preterm birth or incidence of low birth weight infants. However, women taking calcium supplementation gave birth to slightly heavier infants (average 80g mean difference in weight). The review concluded that calcium supplementation is useful to reduce risk of pre-eclampsia but does not provide additional benefits during pregnancy.[12]

FOLIC ACID (FA)

Folic acid is required during normal cell division and is essential for early fetal development. Folic acid can be derived from dietary sources such as fortified grains and cereals, leafy greens, and dried beans.

In 1998 the US Food and Drug Administration (FDA) mandated folate fortification of grains and cereals. Fortification typically provides 0.1mg/day folate, but higher fortification levels were not used in order to prevent concealment of vitamin B12-related anemia in other populations. Since the mandate was implemented, levels of neural tube birth defects have declined 30-40% in the United States. However, the fortification will not provide the RDA of folate for most women of childbearing age, and additional supplementation is necessary.

- Current recommendations by the U.S. Preventative Services Task Force and the CDC state that all women of childbearing age should receive a folic acid supplement of 0.4mg per day.[5]
- Any female with a previous pregnancy affected by a neural tube defect (NTD) should consume 4000mcg (4mg) of folic acid starting one month prior to planning to get pregnant as well as during pregnancy.[7]
- Meta-analyses of folic acid supplementation studies demonstrate a reduction of neural tube birth defects of 46% and up to 70% for programs targeting women with a previous NTD. Mandated folic acid fortification of grains has significantly decreased rates of birth defects in the United States and Canada, and supplementation could prevent an estimated 13% of neonatal deaths in low-income countries.[13]
- A recent prospective, observational study in Norway found that taking folic acid alone or folic acid in combination with other supplements during early pregnancy (time period of 4 weeks before to 8 weeks after pregnancy) resulted in a decreased risk of severe language delay in children at age 3.[14]

IODINE

Iodine is required for fetal central nervous system development as well as various metabolic processes; hypothyroidism due to iodine deficiency during pregnancy can lead to irreversible fetal brain damage. [8]

- The American Thyroid Association estimates that only 70% of U.S. households choose iodized salt for household use. Approximately 70% of salt consumption in the U.S. is a result of salt added to processed food; often non-iodized salt is used to add to processed food in the U.S. and Canada.[8]
- The typical American diet contains sufficient iodine, but those following vegan diets may have suboptimal levels of iodine. Furthermore, typical iodine consumption may not be sufficient to meet the increased iodine requirements needed during pregnancy and lactation for some individuals. [8]
- The Institute of Medicine recommends a daily iodine intake of 220mcg per day during pregnancy and 290mcg during lactation; the World Health Organization recommends a daily intake of 250mcg during pregnancy. [8]
- The American Thyroid Association recommends that pregnant and lactating women receive iodine 150mcg daily as part of a prenatal vitamin supplement in order to meet daily requirements. The American Thyroid Association recommends that manufacturers of prenatal vitamins formulate prenatal vitamins with 150mcg iodine. [8]
- Excess iodine intake may result in fetal goiter.[6]

Iodine content of selected PNV		
	Iodine content	**Source of iodine**
Cavan alpha	220mcg	not specified
Citranatal 90 DHA	150mcg	potassium iodide
Citranatal Assure	150mcg	potassium iodide
Citranatal DHA	150mcg	potassium iodide
Citranatal Harmony	0	--
Concept DHA	0	--
Duet DHA Balanced	220mcg	not specified
Gesticare DHA	150mcg	potassium iodide
Neevo DHA	0	--
Nexa-Select	0	--
Paire OB Plus DHA	175mcg	potassium iodide
Prefera OB DHA	250mcg	potassium iodide
Prefera OB	250mcg	potassium iodide
Prenaplus	0	--
Prenatabs FA	150mcg	potassium iodide
Prenatabs Rx	150mcg	potassium iodide
Prenatal Plus	0	--
Prenate DHA	0	--

Iodine content of selected PNV		
	Iodine content	**Source of iodine**
Prenate Elite	150mcg	not specified
Prenate Essential	150mcg	potassium iodide
Prenavite (Rugby) NDC 00536-4085-01 (generic Stuart prenatal)	0	--
Prenavite protein coated (Rugby) NDC 00536-4063-01	150mcg	potassium iodide
Taron-prex prenatal (with DHA)	0	--
Vinate GT	0	--
Zatean-PN	0	--

IRON

Sufficient iron intake is required for the transport of oxygen in the blood of both the pregnant female and the fetus. The recommended daily allowances (RDA) of elemental iron for non-pregnant females is 15mg-18mg, and increases to 27mg during pregnancy.[11] A supplement containing 30mg elemental iron is often recommended during pregnancy. Lactating women will require 10mg elemental iron.[15] During pregnancy the iron requirements of the fetus are prioritized, and iron deficiency anemia may result during pregnancy if adequate iron is not consumed. Because the well-balanced diet does not provide enough iron during pregnancy, iron supplementation is advised during pregnancy. Various iron salts must be evaluated based on the elemental iron content, and any iron supplement used during pregnancy should contain at least 30mg elemental iron.

- Concurrent administration of foods containing vitamin C may enhance the absorption of iron supplements
- Constipation is a common adverse effect of iron supplements. Some prenatal vitamins contain docusate sodium (DSS) to prevent constipation (related to iron content or other causes).

VITAMIN A

Vitamin A is required during fetal growth and epithelial differentiation, and later important for maintenance of visual function. The RDAs of vitamin A are 700mcg for non-pregnant individuals, 770mcg for pregnant females, and 1300mcg during lactation. Many women will receive the recommended vitamin A levels from a diet with adequate intake from animal (retinol) or vegetable sources (provitamin A carotenoids), and routine supplementation is not advised. Supplements containing vitamin A doses of 10,000-15,000 IU per day or higher, as well as vitamin A derived topical products (retinoids), may increase the risk of birth defects and should be avoided during pregnancy. Vitamin A is a lipid-soluble vitamin and may be stored in the liver and fatty tissues.

- A 1995 study published in the New England Journal of Medicine found that birth defects increased when mothers obtained higher doses of vitamin A (retinol) from supplements. Defects of cranial-neural crest tissue were particularly likely to be associated with daily retinol intake greater than 15,000 IU per day. The group determined that a threshold value of preformed vitamin A supplemental doses greater than 10,000 IU daily may be teratogenic.[16]

- Certain fish oil formulations, such as cod liver oil, may contain vitamins A and D. Pregnant women should be careful to limit vitamin A intake from supplements during pregnancy.

VITAMIN D

Vitamin D regulates normal blood levels of calcium and phosphorus, is required for development of tooth enamel and is also required to allow proper absorption of calcium. Common dietary sources of vitamin D include fortified milk, fish and eggs. There is concern that prevalence of vitamin D deficiency is increasing due to reduced UV light exposure (increased time indoors and sunscreen use while outdoors).

- The American Congress of Obstetricians and Gynecologists (ACOG) states there is insufficient evidence to recommend routine vitamin D screening for pregnant women at this time.[9]
- A large cohort study of data from nurses' mothers (nurses enrolled in Nurses Health Study II (35,794 females)) demonstrated a link between vitamin D dietary intake (from milk, fish, margarine and eggs) during pregnancy and reduced rates of multiple sclerosis in offspring. A 38% lower risk of MS was observed in the children of women who drank 2-3 glasses of milk daily during pregnancy compared to women who drank little to no milk.[17]
- A supplement of 1000-2000 IU vitamin daily can be used safely during pregnancy when a vitamin D deficiency exists. [9]
- Vitamin D is a lipid-soluble vitamin and may be excreted more slowly than water-soluble vitamins, thus toxic effects with high doses of lipid soluble vitamins may be a concern.

OMEGA-3 FATTY ACIDS (Long chain polyunsaturated fatty acids)

Recently research has focused on the role of omega-3 long chain polyunsaturated fatty acid (LC-PUFA) consumption during pregnancy and lactation. Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) are two long chain fatty acids typically found in fish and fish oil supplements. Omega-3 fatty acids may have a role in development of the eye and brain. Proposed perinatal health benefits of omega-3 and DHA supplementation include decreased risk of pre-eclampsia, increased birth weight, improved immune function, and prevention of preterm birth; clinical trials provide conflicting results when examining the benefit of omega-3 supplementation toward such outcomes.[18] Omega-3 fatty acids can be derived from dietary sources such as fish, walnuts, flax seeds, and canola oil, as well as omega-3 enriched foods (e.g. omega-3 eggs from hens fed a diet enriched with omega-3 fatty acids).

Over the past 100 years, dietary micronutrient intake has shifted. In the United States, a large increase of omega-6 fatty acid intake and a decrease of omega-3 fatty acid consumption have occurred.[18] Omega-3 fatty acids play a role in various biological activities in the human body, such as decreasing pro-inflammatory cytokine production, improving membrane fluidity, and modulating intracellular signaling. Omega-3 fatty acids also act as antioxidants and are precursors for some neuroprotective molecules.[18] There is concern that low levels of omega-3 fatty acid consumption as well as the increased ratio of omega-6 fatty acids to omega-3 fatty acids in the typical Western diet may play a role in disease.

- A 2004 FDA advisory recommended that pregnant women should limit seafood intake to two 6 ounce servings per week (equivalent to 340 grams) to reduce exposure to mercury.[19]

- Shark, tilefish, mackerel, and swordfish should be avoided during pregnancy due to high levels of mercury and other contaminants.[19]
- The American Dietetic Association, the Institute of Medicine, and other organizations recommend that pregnant women consume up to two 6 ounce servings of seafood per week.
- Currently no large U.S. organization (e.g., ACOG, American Academy of Pediatrics) offers a recommendation for DHA prenatal supplements during pregnancy.
- The World Association of Perinatal Medicine Dietary Guidelines Working Group suggests that pregnant females consume at least 200mg DHA daily.[20, 21] A panel of experts from Germany, the United Kingdom, Denmark, United States, France, Hungary, Switzerland, Poland, and Italy has published a review that agrees with this recommendation; this recommendation is supported by the Early Nutrition Academy and the Child Health Foundation.

Published clinical trials present conflicting evidence for supplementation of DHA during the perinatal period. A summary of current evidence from clinical trials indicates that omega-3 fatty acid supplementation has a likely benefit to improve the outcome of preterm birth before 34 weeks.[18] There are conflicting results regarding benefit toward neurodevelopmental outcomes of a preterm infant or term infant, as well as for treatment of maternal perinatal depression. Currently clinical trials indicate no benefit of omega-3 fatty acids for outcome on preeclampsia or intrauterine growth restriction.[18]

- An Australian double blind, randomized study of DHA supplementation (2399 women at 21 weeks' gestation or less) compared DHA fish oil 800mg capsules to a vegetable oil 500mg placebo group and found no difference in cognitive and language development of offspring at 18 months or levels of postpartum depression in women at 6 weeks or 6 months post-delivery.[22]
- A Cochrane review of supplementation of long chain polyunsaturated fatty acids (LCPUFA) in breastfeeding mothers concluded that there is currently insufficient evidence towards LCPUFA supplementation during breastfeeding as a method to improve infant growth and development. LCPUFA supplements did not appear to enhance neurodevelopment or visual acuity in offspring. [23]
- A systematic review and meta-analysis of intake of marine omega-3 fatty acids during pregnancy found that consumption of omega-3 fatty acids during pregnancy reduces risk of preterm birth and increases birth weight of offspring (mean increase of 4.5 days longer gestation).[24]
- A 2009 Cochrane review concluded that not enough evidence is currently available to determine if omega-3 fatty acid supplements taken during pregnancy decreases risk of pre-eclampsia and low birth weight babies. However, a small reduction in risk of early preterm births (<34 weeks) was found among women taking fish oil supplements (relative risk 0.69).[25]
- A randomized, double blind study of over 800 pregnant women in Mexico randomized subjects to receive a prenatal DHA supplement of 400mg daily or placebo daily starting at 18-22 weeks gestation and continuing until delivery. The infants who had received DHA exposure during the pregnancy were less likely to experience colds at one month of age and had reduced cold symptoms at ages one month, 3 months, and 6 months.[26]
- A study of 68 low income women in a maternal and infant health program in Michigan found that omega-3 fatty acid intake (DHA and EPA) was only 13% of that typically recommended (typical recommendations are two 6 ounce servings of seafood per week equivalent to 9g omega-3 fatty acids per month). African American women had a significantly higher intake (2.8g/month) than

Hispanic (1.64g/month) or Caucasian women (0.93g/month). The authors concluded that programs encouraging DHA/EPA intake should be implemented for at-risk populations. [27]

OTHER VITAMINS, MINERALS AND TRACE ELEMENTS

Several other vitamins and minerals are often contained in prenatal vitamin formulations. A well-balanced diet will often offer sufficient levels of these nutrients in the diet, and routine supplementation is not recommended.

	U.S. RDA during pregnancy[10]	Comments
Copper	2mg	• Should be supplemented when zinc supplementation is used
Niacin	18 mcg	• Routine supplementation not recommended • Required to release energy from cells; niacin deficiency may result in pellagra.
Phosphorus	700mg	• Routine supplementation not recommended • Plays an essential role in fetal bone development
Vitamin B1 (thiamine)	1.4mg	• Routine supplementation not recommended • Required to release energy from cells.
Vitamin B2 (riboflavin)	1.4mg	• Routine supplementation not recommended • Required to release energy from cells.
Vitamin B6 (pyridoxine)	1.9mg	• Routine supplementation not recommended • Required to perform protein, carbohydrate and lipid metabolism as well as for the synthesis of heme compounds.
Vitamin B12 (cyanocobalamin)	2.6mcg	• Routine supplementation not recommended • Common source: animal proteins • Required for cell division and DNA synthesis
Vitamin C	85mg	• Routine supplementation not recommended • Reduces free radicals and has a role in procollagen formation • Severe deficiency results in scurvy
Vitamin E	15mg (no increased req. during pregnancy)	• Routine supplementation not recommended • Antioxidant commonly derived from animal proteins and fats • Vitamin E deficiency may result in hemolytic anemia in the newborn (rare)
Vitamin K	90mg (no increased req. during pregnancy)	• Routine supplementation not recommended

	U.S. RDA during pregnancy[10]	Comments
Sodium	1.5mg	• Often abundant in U.S. diet
Zinc	11mg	• Routine supplementation not recommended • Required for nucleic acid and protein metabolism

- A 2009 retrospective literature review showed that females taking multi-micronutrient supplements in pregnancy versus iron/folic acid supplements or placebo had reduced incidence of low birth weight. Preterm birth was not affected by supplement type.[28]
- Cochrane reviews have demonstrated no high quality evidence toward significant beneficial outcomes for supplementation during pregnancy for the following nutrients: oral magnesium, zinc.[29, 30]
- A meta-analysis of clinical trials examining zinc supplementation during pregnancy determined that zinc slightly reduces preterm births but does not appear to prevent other issues (e.g. low birth weight).[30]
- Meta-analyses of vitamin E and vitamin C supplementation during pregnancy determined that there is currently not enough quality evidence to determine the effects of vitamin E or vitamin C alone on outcomes.[31, 32] Three studies with 510 subjects taking vitamin E in combination with other supplements demonstrated lower rates of pre-eclampsia (RR 0.44), but this was not validated by a random effects model.[31] The risk for preterm birth may have increased with vitamin C supplements.[33]
- A separate meta-analysis (9 trials of 19,810 pregnant females) determined that supplements of vitamin E and vitamin C during pregnancy were linked to increased risk for premature rupture of membranes and risk of gestational hypertension.[33]
- A Cochrane review of pyridoxine (vitamin B6) supplementation during pregnancy concluded that there is no evidence of benefit for pyridoxine supplements taken during pregnancy.[34]
- A Cochrane review of multiple micronutrient supplementation during pregnancy (among women in low to middle income countries)showed a reduction in babies born with low birth weight as well as maternal anemia, but when compared against iron/folic acid supplementation alone, no benefit was seen.[35]

SPECIAL POPULATIONS

- Women following vegan diets may require additional vitamin D and vitamin B12 supplementation during pregnancy.
- Women with history of bariatric surgery, especially if roux-en-Y gastric bypass or biliopancreatic diversion procedure may require additional vitamin B12, folic acid, iron and calcium supplements during pregnancy due to malabsorption.[3]
- Overall calorie and nutrient requirements are increased during a multiple gestation pregnancy. Women with pregnancy of multiple gestation should receive routine prenatal supplementation

during pregnancy with at least 1mg of folic acid and 2mg of vitamin B6 daily. Iron requirements may also be increased.[3]

- Other populations, including athletes, adolescents, those with inflammatory bowel disease or eating disorders, low income individuals, and others, may require consideration of additional dietary supplements as well as adequate caloric intake during pregnancy.

CONCLUSION

Pregnant females may require supplemental iron and folic acid in addition to dietary intake in order to meet the RDA for these nutrients. An over-the-counter or prescription prenatal vitamin is typically recommended during pregnancy to meet these additional nutrient requirements. Various prenatal supplements are available and often provide additional nutrients such as zinc, copper, calcium, vitamin B6, vitamin C, and vitamin D. Some formulations also include iodine and/or omega-3 fatty acid (DHA/EPA) supplementation. Some clinical trials indicate that there may be benefits to omega-3 supplements taken during pregnancy, but currently no specific recommendations are available from large U.S. organizations or U.S. government entities (CDC, US Preventative Services Task Force or others). While prenatal vitamins may be important for individuals that are unable to obtain the RDA for various nutrients from diet alone, prenatal vitamins cannot replace lifestyle changes and proper prenatal nutrition from a healthy diet.

Cost

NON DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
Citranatal B-Calm (iron 20mg/FA 1mg/B6 25mg)	PNV combo #63 with calcium and with vitamin B6 tablets	One vitamin daily + vitamin B6 tablets	Rx
Citranatal Rx (iron cb & gluc 27mg/FA 1mg/DSS 50mg)	PNV combo #22 tablet	One tablet daily	Rx

CompleteNate (Fe fum 29mg, FA 1mg, no Calcium) (Trigen)	PNV combo #14 Chew tablet	One tablet daily	Rx
Co-natal FA (Iron 29mg/FA 1mg	PNV combo #78 tablet	One tablet daily	Rx
Concept OB (iron fum 85mg/FA 1mg)	PNV combo #15	One capsule daily	Rx
Fe C (carbonyl iron 100mg, vit C 250mg, FA 1mg plus vit B12) (Boca Pharm)	Tablet	One tablet daily	Rx
Folinatal Plus B (calcium carb 200mg/FA 1mg/vit B12 12mcg/vit B6)	PNV tablet	One tablet daily	Rx
Folivane-OB (Fe fum 85mg, FA 1mg)	PNV Combo #15 capsule	One capsule daily	Rx
Icar-C Plus (Fe carbonyl 100mg, vit C 250mg, FA 1mg with B12) – by Hawthorn	PNV Tablet	One tablet daily	Rx
Icar-C Plus SR (Fe carbonyl 100mg, vit C 320mg/FA 1mg/vit B12)	PNV SR capsule	One capsule daily	Rx
Lactocal-F (fe fumarate 65mg/FA 1mg)	Tablet	One tablet daily	Rx
Marnatal-F (iron poly 60mg/FA 1mg)	capsule	One capsule daily	Rx
Mission Prenatal (Fe gluconate 30mg/FA 0.4mg)	PNV tablet	One tablet daily	OTC

Mission Prenatal FA(Fe gluconate 30mg/FA 0.8mg)	PNV tablet	One tablet daily	OTC
Mission Prenatal HP(Fe gluconate 30mg/FA 0.8mg)	PNV tablet without calcium	One tablet daily	OTC
M-Vit (Fe fum 27mg, 1mg FA, no Ca)	PNV caplet w/o Calcium	One caplet daily	Rx
Natelle-EZ (Fe 25mg/FA 0.8mg)	PNV Combo #89 tablet	1 tablet daily	OTC
Nestabs (iron bisgly 32mg/FA 1mg)	PNV Combo #86	One tablet daily	Rx
Obtrex (Fe carb 29mg/DSS 50mg/FA 1mg)	PNV without calcium	1 caplet daily	Rx
OB Complete Premier (iron carb 30mg/iron asp gl 20mg/FA 1mg	PNV combo #83	One tablet daily	Rx
O-Cal FA (Fe fumarate 60mg/FA 1mg)	PNV tablet	One tablet daily	Rx
PNV-iron (iron 29mg/FA-levomefolate 1.13mg with calcium)	PNV Combo #8 with Ca (tablet)	One tablet daily	Rx
PNV-Select (vitamin with iron 27mg, FA 1mg with calcium)	PNV Combo #40 tablet	One tablet daily	Rx
Poly iron PN (iron PS Complex 60mg/FA 1mg)	Tablet	One tablet daily	Rx
Poly iron PN Forte (iron PS Complex 60mg/FA 1mg)	Tablet	One tablet daily	Rx
Prefera OB (Iron 28mg, FA 1mg)	PNV Combo #21 tablet	One tablet daily	Rx
Prenafirst (Fe fum 17mg, FA 1mg) (Cypress)	Tablet	One tablet daily	Rx

Prenafort (Fe carb/Fe sulfate 60mg/FA 1mg)	Tablet	One tablet daily	Rx
Prenaplus (iron fumarate 27mg, folic acid 1mg) (Cypress)	PNV Combo #71 tablet	One tablet daily	Rx
Prenata (iron 29mg/FA 1mg)	PNV combo #37 chew tab	One tablet daily	Rx
Prenatal 19 (fe fum 29mg, folic acid 1mg with docusate) Cypress	Tablet	One tablet daily	Rx
Prenatal 19 Chew tab (fe fum 29mg, folic acid 1mg) Cypress	Chewable tablet	One tablet daily	Rx
Prenatal vitamins (w/ Ca, Fe, FA <1mg (doses not given) (RiteAid, Longs, Magno Humpries, others)	PNV Tablet	One tablet daily	OTC
Prenatal vitamins (vitamin with iron fumarate 28mg, folic acid 0.8mg) (Americsource)	PNV Tablet	One tablet daily	OTC
Prenatal Ad (iron carbonyl 90mg, FA 1mg, DSS) (Cypress)	PNV Combo #15 tablet	One tablet daily	Rx
Prenatal vitamins (vitamin with iron fumarate 27mg, folic acid 0.8mg) (H.E.B., McKesson)	PNV Tablet	One tablet daily	OTC
Prenatal S (fe fum 27mg, FA 0.8mg)	Tablet	One tablet daily	OTC
Prenatal-Z (Fe/FA 1mg with calcium)	PNV Tablet w/ calcium	One tablet daily	Rx
Prenatabs FA (vitamin with iron fumarate 29mg, folic acid 1mg)	PNV Combo #78 tablet	One tablet daily	Rx

Prenate Elite (Fe fum 27mg, FA 1mg with Ca)	PNV #40 tablet	One tablet daily	Rx
Prenatal Plus (vitamin with iron fumarate 27mg, folic acid 1mg) (Major)	Tablet, PNV Combo #72	One tablet daily	Rx
Prenatal Plus (vitamin with iron fumarate 27mg, folic acid 1mg) (Amneal)	PNV Combo #72 tablet	One tablet daily	Rx
Prenatal-U (Fe fum 106.5mg/FA 1mg)	PNV Combo #5 without calcium	One softgel daily	Rx
Prenate Elite (iron 26mg/FA 1mg combo #6)	PNV combo #36	One tablet daily	Rx
Prenavite (vitamin with iron fumarate 28mg, folic acid 0.8mg)	PNV Tablet	One tablet daily	OTC
Select OB (Fe 29mg/FA 1mg)	PNV caplet without calcium	One caplet daily	Rx
Se-Natal 19 Chewable (fe fum 29mg, FA 1mg)	PNV chew tablet	One chewable tablet daily	Rx
Se-Natal 19 (fe fum 29mg, folic acid 1mg with docusate) Se-Tan	PNV tablet	One tablet daily	Rx
Se-Natal One (iron 60mg/FA 1mg/calcium)	PNV tablet	One tablet daily	Rx
Stuart Prenatal (fe fumarate 28mg/FA 1mg)	PNV tablet	One tablet daily	Rx
Taron-BC (iron 20mg/FA 1mg/B6 25mg)	PNV combo #63 tablet	One tablet daily	Rx
Triadvance (iron carbonyl 90mg,FA 1mg, DSS 50mg) (Trigen)	PNV combo #15 tablet	One tablet daily	Rx

Tricare (fe fum 27mg/FA 1mg)	PNV tablet	One tablet daily	Rx
Trimesis Rx (calcium carb 200mg/vit B12 12mg/FA 1mg/B6)	PNV tablet with calcium	One tablet daily	Rx
Trinatal Rx 1 (Calcium/Iron 60mg/FA 1mg)	PNV tablet combo #27 with calcium	One tablet daily	Rx
Trinate (fe fum 28mg, FA 1mg) (Cypress)	PNV combo #73 tablet	One tablet daily	Rx
Tri-Rx (iron cbn & gluc 27mg/FA 1mg/DSS 50mg)	PNV combo #22	1 tablet daily	Rx
Triveen-One (iron 27mg/FA 1mg/DHA 250mg)	PNV combo #62	One capsule daily	Rx
Triveen-PRX RNF (Fe fum 26mg/FA 1.2mg/DHA 55mg)	PNV combo #66	One capsule daily	Rx
Triveen-U (Fe fum 106.5mg/FA 1mg)	PNV with no calcium	One capsule daily	Rx
Venatal-FA (iron 29mg/FA 1mg)	PNV tablet	One tablet daily	Rx
Vinate II (Fe bisgly 29mg, FA 1mg)	Tablet	One tablet daily	Rx
Vinate Calcium (iron cbn & gly 27mg/FA 1mg/DSS 50mg)	PNV combo #4 with calcium	One tablet daily	Rx
Vinate Care (fe fum 40mg/FA 1mg; NO vitamin A)	PNV chew tablet with NO vitamin A	One tablet daily	Rx
Vinate GT (Fe carbonyl 90mg, FA 1mg, DSS 50mg)	PNV Combo #16 tablet	One tablet daily	Rx
Vinate IC (Iron 106mg/FA 1mg)	PNV combo #2 without calcium	One capsule daily	Rx
Vinate M (fe fum 27mg, FA 1mg with SE)	PNV tablet	One tablet daily	Rx

Vinate One (Fe fum 60mg, folic acid 1mg with calcium) Breckenridge	PNV Combo #27 Tablet	One tablet daily	Rx
Vinate PN Care (Fe Asp 30mg/DSS 50mg/FA 1mg)	PNV Combo #7 tablet	One tablet daily	Rx
Vinate Ultra (Fe fum 90mg, FA 1mg, DSS 50mg)	PNV Combo #18 tablet	One tablet daily	Rx
Vitafol (Fe fum 65mg/FA 1mg/Ca/E/MVI)	PNV caplet with calcium and vitamin E	One caplet daily	Rx
Vitafol-OB (Fe 65mg/FA 1mg)	PNV Combo tablet #10	One tablet daily	Rx
Vitafol-PN (Fe fum 65mg/FA 1mg/calcium)	PNV caplet with calcium	One caplet daily	Rx
Vitaspire (iron 29mg/FA 1mg)	PNV combo #44 tablet	One tablet daily	Rx
Vol-Plus (vitamin with iron 27mg, folic acid 1mg)	PNV Combo #71	One tablet daily	Rx
Vol-tab Rx (vitamin with iron (carbonyl) 29mg, FA 1mg)	Combo #76	One tablet daily	Rx
Zatean PN (Fe fum 27mg, FA 1mg) – by Trigen	PNV Combo #40 PNV tablet	One tablet daily	Rx
DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
Cavan alpha kit (sod iron EDTA 27mg, FA 1mg, omega-3 300mg)	PNV combo #67 Combination pack (tablet and softgel)	1 tablet + 1 softgel daily	Rx
Cavan-EC Sod DHA (iron sod fer 30mg, FA 1mg,	PNV #48 Combination package	1 tablet + 1 cap daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
omega-3 440mg)	(tablet and capsule)		
Citranatal Assure (Fe carbonyl & gluc, folic acid 1mg with DHA & DSS)	PNV Combo #38	One tablet + one capsule daily	Rx
Citranatal 90 DHA (Fe gluc & carbonyl 90mg, FA 1mg, 300mg DHA w/ DSS	PNV Combination package PNV with Ca #64	One tablet and one capsule daily	Rx
Citranatal DHA (Fe carbonyl 27mg, FA 1mg, DHA 50mg w/ DSS)	PNV Combo #22	One tablet and one capsule daily	Rx
Citranatal Harmony (Iron carbonyl 28mg, FA 1mg, DSS 50mg with DHA)*	PNV Combo #69	One capsule daily	Rx
* = (Citranatal Harmony reformulated January 2012 –now is prenatal vitamin #34 with 50 mg iron carbonyl, 1 mg folic acid, 50 mg docusate sodium, and DHA)			
Complete Natal DHA (iron B-G 29mg/FA 1mg/omega-3 250mg)	PNV combo tablet + capsule Combination package	Combination pack - One tablet + one capsule daily	Rx
Concept DHA (Fe fum & PS 35mg, FA 1mg, omega-3 200mg)	PNV Combo #16	One capsule daily	Rx
Corenate-DHA (fe carbonyl & gluc 35mg, 1mg FA, 50mg DSS, with DHA)	PNV Combo #38	Combination pack - One tablet + one capsule daily	Rx
Duet DHA Balanced (sodium iron EDTA&PS	PNV Combo #81 Combination	One tablet and one capsule daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
27mg, FA 1mg, omega-3 430mg)	pack (tablet and capsule)		
Duet DHA Complete Balanced (sodium iron EDTA&PS 27mg, FA 1mg, omega-3 300mg)	PNV Combo #67 Combination package (tablet and capsule)	One tablet and one capsule daily	Rx
Elite OB DHA (Iron 28mg/FA 1.25mg/DHA)	PNV Combo #7 without calcium	One softgel daily	Rx
Folcal DHA (fe fum 27mg, FA 1.25mg, DSS 55mg with DHA)	PNV Combo #66 Capsule	One capsule daily	Rx
Folcaps Omega-3 (Iron 27mg, FA 1mg, Omega-3 330mg)	PNV Combo #37 capsule	One capsule daily	Rx
Folivane-PRX DHA NF (Fe fum 30mg/FA 1.24mg/DSS 55mg/DHA)	PNV combo #39 softgel	One softgel daily	Rx
Gesticare DHA (Iron 27mg, FA 1mg, DHA 250mg with Ca)	PNV Combo #60 Combination package (tablet and capsule)	Combination pack - One tablet + one capsule daily	Rx
Natelle One (iron 28mg/FA 1mg/DHA 250mg)	PNV Combo #70 capsule	One capsule daily	Rx
Neevo DHA (iron 27mg, levomefolate 1.13mg with Ca and DHA)	PNV Combo #79	One gelcap daily	Rx
Nestabs DHA (iron bisgly 32mg/FA 1mg/DHA 230mg)	PNV combo #87 Combination package	Combo pack - One cap + 1 tablet daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
Nexa-Select (Fe fum 29mg, FA 1.25mg, Vit D 800 IU,DHA 325mg with 55mg DSS)	PNV combo #80	One capsule daily	Rx
OB Complete 400 (iron cb 40mg, iron aspg 10mg/FA 1mg/DHA)	PNV combo #29	One capsule daily	Rx
OB Complete One (iron carbonyl 40mg/FA 1mg with DHA)	PNV combo #85 softgel	One softgel daily	Rx
OB Complete with DHA (iron carb 30mg/iron asp 10mg/FA 1mg/omega-3)	PNV combo #30 softgel	One softgel daily	Rx
OB Natal One (Fe 27mg/FA 1mg/ omega-3 330mg with calcium)	PNV combo #37 with calcium	One capsule daily	Rx
Obstetrix DHA (Fe carb 29mg/FA 1mg/DSS 50mg/omega-3)	PNV Combo #12	Combination pack - One tablet + one capsule daily	Rx
Obtrex DHA (Fe carb 29mg/FA 1mg/DSS 50mg/omega-3)	PNV Combo #12	Combination pack - One tablet + one capsule daily	Rx
Paire OB Plus DHA (Iron 22mg, FA 6mg, FA 1mg, DHA 200mg)	PNV combo #8 Combination package	Combo pack - One gelcap + 1 tablet daily	Rx
PNV-DHA (vitamin with iron 27mg, folic acid 1mg, DHA 300mg)	PNV Combo #47	One softgel daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
PNV-DHA Plus (Iron 27mg, FA 1.13mg with DHA)	PNV Combo #42 capsule	One capsule daily	Rx
PNV-DHA Plus docusate (Fe fum 27mg, FA 1.25mg, DSS 55mg, with DHA)	PNV Combo #66 capsule	One softgel daily	Rx
PNV-Omega (Iron 28mg, FA 1mg, omega 3-300mg with Ca) (Acella)	PNV Combo #68 softgel	One softgel daily	Rx
PNV-Total (Iron 35mg, FA 1mg, fish oil 1.2mg)	PNV Combo #17 softgel	One softgel daily	Rx
PR Natal 400 (Iron B-G-HCl 29mg, FA 1mg, omega-3 400mg)	PNV Combo #53	One tablet and one capsule daily	Rx
Prefera-OB One (Iron 22mg, 6mg, FA 1mg, DHA 200mg)	PNV Combo #19	One softgel daily	Rx
Prefera OB Plus DHA (28mg, 6mg, 1mg, 203mg)	PNV Combo #22	One tablet and one softgel daily	Rx
Prefera-OB One (Fe 22mg/FA 1mg/DHA 200mg)	PNV Combo #19 softgel	One softgel daily	Rx
Prenaissance (iron fum 29mg/FA 1.25mg/DSS 55mg/ w/DHA)	PNV Combo #80 softgel	One softgel daily	Rx
Prenaissance Plus (Fe carb. 28mg/FA 1mg/DSS 50mg/w DHA)	PNV Combo #69 softgel	One softgel daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
Prenatal+ DHA (Fe fum 28mg/FA 975mcg/DHA 200mg) (Walgreen)	PNV Combo #91 Combination pack	One tablet and one softgel daily	OTC
Prenate DHA (iron fumarate 28mg/FA 1mg/DHA 300mg)	PNV combo #38 softgel	One softgel daily	Rx
Prenate Essential (iron 29mg, FA 1mg, DHA 300mg)	PNV #35	One softgel daily	Rx
Prenate Essential (Fe 28mg, FA 1mg, DHA 300mg)	PNV Combo #68 Softgel	One softgel daily	Rx
Prenexa (fe fum 27mg, FA 1.25mg, DSS 55mg with DHA)	PNV Combo #66 Softgel	One capsule daily	Rx
Preque 10 (Fe carbonyl 15mg/FA 0.5mg/DSS 25mg with DHA, lycopene, CoQ10)	PNV Combo #18 tablet	tablet	Rx
PR Natal 430 (Iron 29mg, FA 1mg, omega-3 430mg)	PNV Combo #54	One tablet and one capsule daily	Rx
PR Natal 400 EC (iron 29mg, FA 1mg, omega-3 400mg)	PNV Combo #19 combination pack (tablets/caps)	1 tablet + 1 cap daily	Rx
PR NATAL 430 EC	PNV combo #55 Combination package (tablet and	1 tablet + 1 cap daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
	capsule)		
Rovin NV DHA (27mg, 400mg, 1mg)	PNV Combo #42	One softgel daily	Rx
Select-OB +DHA (Iron 29mg, FA 1mg, DHA 250mg)	PNV Combo #13 Combination package	One softgel + one capsule daily	Rx
Setonet (iron BG 29mg/FA 1mg/omega-3 430mg)	PNV #54 (iron 29mg/FA 1mg/omega-3 430mg) combination pack of tablet and capsule	1 tablet + 1 cap daily	Rx
Setonet-EC (iron BG 29mg/FA 1mg/omega-3 430mg)	PNV combination #55- pack of tablet and capsule	1 tablet + 1 cap daily	Rx
Stuart Prenatal +DHA (iron 28mg/FA 1mg/DHA)	PNV combination #92- pack of tablet and gelcap	1 tablet + 1 cap daily	Rx
Taron-C DHA (Fe fum 35mg, FA 1mg,omega-3 200mg)	PNV Combo #16	One capsule daily	Rx
Taron-Duo EC (iron 29mg/FA 1mg/omega-3 400mg)	PNV combination #19- pack of tablet and capsule	1 tablet + 1 cap daily	Rx
Taron-Prex Prenatal (Fe fum 30mg, FA 1.25mg, DSS 55mg with DHA)	PNV combo #39 Capsule	One capsule daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
TL-Select (fe fum 29mg, FA 1.25mg, DSS 55mg with DHA)	PNV combo#80 softgel	1 softgel daily	Rx
Triveen-Ten (iron carbonyl 15mg/FA 0.5mg/UBI/DHA)	PNV combo #18	1 tablet daily	Rx
Triveen Duo DHA (Fe B-G 29mg/FA 1mg/omega-3 400mg)	PNV combination #53- pack of tablet and capsule	1 tablet + 1 cap daily	Rx
Ultimatecare One (iron 27mg/FA 1mg/DSS 50mg/omega-3 330mg)	PNV combo #37 w/ calcium	softgel	Rx
Ultimatecare One NF (iron 27mg/FA 1mg/DSS 50mg/omega-3)	PNV combo #35 w/ calcium	softgel	Rx
Vemavite-PRX 2 (Fe fumarate 27mg/ FA 1.25mg/DSS 55mg w/ DHA)	PNV combo #66 Softgel	One softgel daily	Rx
Vena-Bal DHA (sodium iron EDTA 27mg/FA 1mg/omega-3 430mg)	PNV combo #81	1 tablet + 1 cap daily	Rx
Vitafol-OB+DHA (Iron 65mg, FA 1mg, DHA 250mg)	PNV combo #10 Combination Pack	Combination pack- One tablet + one capsule daily	Rx
Vitafol-One (iron poly 29mg/FA 1mg/DHA 200mg)	PNV combo #26	One capsule daily	Rx
Viva DHA (iron fum 28mg/FA 1mg/omega-3	PNV combo #11	One softgel daily	Rx

DHA FORMULATIONS – PRENATAL VITAMINS			
Drug	**Dosage Form & Strength**	**Usual Daily Dose**	**OTC or Rx**
200mg)			
Zatean CH (Fe 27mg, FA 1mg, DSS 50mg, with DHA)	PNV combo #69 capsule	One capsule daily	Rx
Zatean PN DHA (iron 27mg, FA 1mg, omega-3 300mg)	PNV combo #47	One capsule daily	Rx
Zatean-PN Plus (iron 28mg, FA 1mg, DHA 300mg)	PNV softgel combo #68	One softgel daily	Rx
One-A-Day Women's Prenatal DHA (iron fum 28mg/FA 800mcg/omega-3 440mg)	PNV #75 combination pack	One tablet and one capsule daily	OTC
Please note that not all PNV ingredients are listed. See manufacturer prescribing information for full list of vitamin and mineral content.			

COST – OTHER

Drug	Dosage Form & Strength	Usual Daily Dose
Folic acid	0.4 mg tablet	One tablet daily (varies; up to 4mg daily if history of NTD)
	1 mg tablet	
Omega-3/DHA/fish oil	Softgel	One softgel daily

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